EXPLANATION OF SIGNIFICANT DIFFERENCES
BERKS SAND PIT SUPERFUND SITE

SDMS DocID 2005300

I. INTRODUCTION

Site Name: Berks Sand Pit Superfund Site

Site Location: Longswamp Township, Berks County, Pennsylvania

Lead Agency: U.S. Environmental Protection Agency, Region III ("EPA" or "the Agency")

Support Agency: PA Department of Environmental Resources ("PADER")

A Record of Decision ("ROD") for the Berks Sand Pit Superfund Site was signed on September 29, 1988. This Explanation of Significant Differences ("ESD") is issued in accordance with Section 117 (c) of the Comprehensive Environmental Response, Compensation and Liability Act, as amended by the Superfund Amendments and Reauthorization Act of 1986 ("CERCLA"), and is now a part of the Administrative Record for the Site.

Additional information became available following the issuance of the Record of Decision which gave rise to the need for an ESD. Specific information acquired during the remedial design and remedial actions to date include: (1) contamination in the residential wells significantly decreased as the contaminant plume migrated past the residential area thus eliminating the need for an alternate waterline for the community; (2) groundwater extraction wells were placed in an area such that the source of contamination in the sediments is anticipated to be eliminated making excavation and off site incineration of the sediments as called for in the ROD, unnecessary; and (3) hydrogeological concerns require treated groundwater to be discharged to the creek and not reinjected into the aquifer. The new information acquired and EPA's conclusions are discussed in more detail below.

The Administrative Record for this Site is located in the Longswamp Township Municipal Building located on 1112 State Street, in Mertztown, Pennsylvania and may be reviewed during normal business hours. A copy of the Administrative Record is also located at EPA Region III, 841 Chestnut Building, Philadelphia, Pennsylvania and is available for review during normal business hours.

II. SUMMARY OF THE SITE HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY

The Berks Sand Pit was created by the removal of sand and gravel from the area. The size of the pit was approximately 100 feet in diameter and 30 feet deep. The pit was reportedly used by area residents for the disposal of refuse. Industrial waste also was alleged to have been disposed of in the area around the pit. Houses were constructed and private wells installed at this location beginning in 1978, after the pit was backfilled. One home was built directly on top of the pit.

During January 1982, groundwater contamination was detected in the area by residents, and despite emergency actions by EPA, no pocket of contamination or buried drums of liquid solvents were discovered, even though the pit was partially excavated and backfilled with clean fill. A water supply well was installed during the removal action to supply an uncontaminated source of drinking water to four area residences.

The plume of groundwater contamination has been defined by the installation of monitoring wells during the Remedial Investigation ("RI") and Remedial Design/Remedial Action ("RD/RA"). The predominant contaminants at the Site are 1,1,1-trichloroethane ("TCA") and 1,1-dichloroethene ("DCE"). These contaminants are "hazardous substances" as defined in Section 101(14) of CERCLA. The ROD addressed remediation of the releases and threatened releases of those hazardous substances.

On September 29, 1988, the EPA issued a ROD to address the endangerment to human health, welfare, and the environment presented by the exposure to contaminated groundwater and releases of contaminated groundwater to the adjacent stream located immediately downgradient of the Site. A complete description of the selected remedy as well as EPA's rationale for the decision is presented in the September 29, 1988 ROD which is attached hereto as Exhibit 1. The major components of the selected remedy are:

* Installation and operation of a groundwater extraction system to remove contaminants from the aquifer;

* Construction and operation of an air stripper with vapor phase carbon absorption and discharge of the treated water to the aquifer by reinjection wells;

* Chemical and biological monitoring of the surface and groundwater quality;

* Local restrictions to prevent any further drinking water wells in the contaminated areas of the aquifer;

* Construction of an alternate water supply system; and

* Excavation of contaminated sediments and off site treatment and disposal by incineration.

III. DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE BASIS FOR THOSE DIFFERENCES

Following the issuance of the ROD, several Significant Differences were identified with the ROD remedy which EPA has since determined warrant changes to the remedy set forth in the ROD but do not warrant a modification to the ROD. The Significant Differences between the remedy presented in the ROD and the remedy that will be implemented are as follows:

(1) The construction of an alternate water supply system as specified in the ROD was strongly opposed by the residents during public meetings held during the remedial design. A questionnaire was sent in June, 1989 to the potentially affected residences. The residents overwhelmingly objected to the installation of an alternate water supply system because each home would be required to pay approximately $500 per year for water usage.

EPA implemented a quarterly sampling program of homeowner wells beginning in November, 1989. The level of contamination in homeowner wells has steadily decreased, with the exception of an isolated unexplained instance which affected a single residence. EPA tracked the plume of contamination as it migrated past the residences and into the downgradient valley where the extraction wells and treatment plant are located. The extraction wells and treatment plant are part of the remedy as selected in the ROD. All homeowner drinking water wells are significantly below the Maximum Contaminant Levels ("MCLs"). Results from residential sampling efforts are included in the Administrative Record.

The most significant changes in contamination levels occurred in several homes located in the central portion of the plume. TCA contamination decreased from 6800 parts per billion ("ppb") in May, 1987 to undetectable levels in May 1993 in one residence and from 1400 ppb in February 1988 to 130 ppb in May, 1993 in a second residence. The MCL for TCA is 200 ppb. Most residences never experienced levels of contamination above the drinking water limit (MCLs) and the levels of contamination in the majority of homes have decreased to only trace amounts.

Since the level of contamination in homeowner wells has drastically decreased, the health threat from consuming drinking water has been virtually eliminated, and therefore, the construction of the alternate water supply system will not be implemented as planned. Residential well sampling will continue on a quarterly basis for the first two years of operation of the

groundwater treatment facility and twice per year during years three through five to determine if additional groundwater actions are appropriate. A five-year review will be conducted in 1998 to evaluate the effectiveness of the remedy and modify the sampling frequency if necessary. It is anticipated the community will strongly support this action since the community now opposes implementing the installation of the waterline.

This proposed modification to the remedy is protective of human health and the environment because through the pumping and treatment of the aquifer, groundwater throughout the entire site area will be remediated to the same cleanup level as defined in the ROD. Quarterly sampling of the residences will verify that all water consumed by residents remains within the drinking water limits (MCLs). This proposed modification to the selected remedy is cost-effective.

(2) With respect to significant differences concerning the sediment excavation portion of the ROD, twenty-nine sediment samples were collected in July, 1992. The data revealed limited contamination of TCA and to a lesser extent DCE. The results were reviewed by Messrs. Robert Davis, EPA, and Robin Burr, Fish and Wildlife Service, Department of the Interior. The highest levels in sediment were 7 - 8 parts per million (ppm) of TCA and were isolated to specific seep areas where contaminated groundwater was discharging to the surface in the form of seeps. The sediments in the creek itself contained significantly lower levels of contamination.

Groundwater extraction wells were placed immediately adjacent to the area containing the highest amount of contamination discharging in the form of surface seeps. Based on pump test results from existing upgradient extraction wells, it is anticipated that the water table will be depressed approximately twenty to thirty feet in the contaminated seep area, thereby eliminating the further release of contamination to the sediments. A site map depicting the location of all extraction wells, areas of sediment sampling, analytical results from the sediment samples, and pump testing results is included in the Administrative Record.

Since the source of contamination in the sediments is the contaminated seeps, and the seeps in the area of highest contamination will be eliminated due to the lowering of the water table, the excavation and offsite incineration of sediments will not be implemented as planned. EPA will evaluate the levels of contamination in the sediments during the first five years of the operation of the treatment facility to monitor the level of contamination in the sediments. It is anticipated that the levels of contamination in the sediments will diminish following the elimination of the current source of contamination, the surface water seeps.

This modification to the selected remedy is protective of human health and the environment since the source of contamination in the sediments will be eliminated. Monitoring for contaminants in the sediments will verify that lowering the water table eliminates the source of contamination. Eliminating the excavation and off site incineration of the sediments is a cost-effective modification to the remedy.

(3) Discharge of treated groundwater to the aquifer by reinjection was specified in the ROD. Hydrogeological concerns were raised during the remedial design due to the highly complex nature of the fractured bedrock system,. The primary concern was the difficulty in predicting the response of the aquifer to the reinjection of treated water and the result this would have on the migrating contaminant plume.

In March, 1990, the United States Geological Survey ("USGS") evaluated the potential for the Creek to accept the flow from the treatment plant and determined that the Creek will easily handle the discharge with no adverse effects. Documentation from the USGS regarding surface discharge is included in the Administrative Record.

Following this evaluation, the remedial design was modified to discharge treated groundwater to the West Branch of the Perkiomen Creek which is located immediately downgradient of the treatment facility. Documentation from PADER defining appropriate discharge limits is included in the Administrative Record in Appendix B of the Remedial Action Work Plan.

This modification to the remedy is cost-effective and protective of human health and the environment since the treated water discharged to the stream does not contain any contaminants above the analytical detection limits.

IV. SUPPORT AGENCY COMMENTS

All of the above changes to the remedy have been coordinated with representatives of PADER. PADER submitted a letter on September 30, 1993 concurring with the changes to the selected remedy as described in this ESD.

V. AFFIRMATION OF THE STATUTORY DETERMINATIONS

Considering the new information that has been developed and the changes that have been made to the selected remedy, EPA believes that the remedy remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action as described in the ROD for this Site, and is cost-

effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site.

VI. PUBLIC PARTICIPATION

A summary of the proposed ESD was released for public comment as part of the Administrative Record file on September 30, 1993. The Administrative Record also includes the ROD and all documents that formed the basis for EPA's selection of the cleanup remedy in the ROD. The proposed ESD and other related documents and the information upon which it is based have been included in the Administrative Record file for this Site. The Administrative Record is available for public review at the locations listed below:

U.S. EPA, Region III
841 Chestnut Building
Philadelphia, PA 19107
Hours: Mon. - Fri., 9:00 a.m. - 4:00 p.m.

Longswamp Township Municipal Building
1112 State Street
Mertztown, PA 19539

The notice of availability of these documents was published in the Reading Eagle and the Allentown Morning Call on September 30, 1993. The public was provided thirty (30) days from the notice date to submit comments. In addition, EPA held a public meeting to discuss the proposed changes on October 17, 1993. During the meeting, representatives from EPA and PADER explained the proposed changes to the Record of Decision and answered all questions. A transcript of the October 17 public meeting is included in the Administrative Record for the Site. No written comments were received by EPA during the public comment period.

2-10-94
Date

Stanley L. Laskowski
Acting Regional Administrator